

Appl. No. 09/896,646 <sup>9</sup>  
Amdt. Dated: September 18, 2004  
Reply to Office Action of May 20, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (currently amended) A communication system comprising:

at least one base station for modulating a carrier signal in response to a data stream, which is to be transmitted by the base station, in order to produce a modulated carrier signal and transmit the modulated carrier signal through at least two distinct propagation media, said base station comprising:

at least two antennas coupled to the respective media;

a transmission unit coupled to the respective antennas, wherein the transmission unit receives the data stream and modulates the carrier signal to produce the modulated carrier signal; and

a calculation unit coupled to the transmission unit and the at least two antennas for receiving the feedback information from the mobile station, and providing weight information to the transmission unit such that each of the modulated carrier signals being transmitted over each of the media are weighted; and

at least one mobile station in communication with the base station for receiving the modulated carrier signal, which undergoes distortion due to propagation through a medium, as a distorted carrier signal through the at least two media and demodulating the distorted signal to recover the data stream,

wherein distinct pilot signals, known by the mobile station, are transmitted to the mobile station by the base station through each of the propagation media, and the mobile station receives the pilot signals as distorted pilot signals through each of the propagation media, then compares the received distorted pilot signals to determine and predict propagation measurements, and wherein feedback information, which is determined therefrom, is transmitted from the mobile station to the base station, then utilized by the base station to alter the characteristics of the modulated carrier signal prior to transmission.

2. (cancelled).

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3. (currently amended) The system of claim 21, wherein the base station transmits a distinct pilot signal to the mobile station via each of the at least two antennas.
4. (original) The system of claim 3, wherein the predicted feedback information is transmitted from the mobile station to the base station via a feedback channel.
5. (currently amended) A method for providing feedback from a mobile station to a base station base on predicted information, the method comprising:
  - performing propagation measurements for a plurality of propagation media;
  - estimating a representative value for each of the at least two of the plurality of propagation media based on the propagation measurements from at least two antennas;
  - performing prediction of future propagation measurements for each of the plurality of propagation media; and
  - generating the feedback information based on prediction of future propagation measurements.
6. (original) The method of claim 5, further comprising conveying the feedback information to the base station using a feedback channel.